[INCH-POUND]
A-A-50587
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SUPERSEDING
MIL-C-29216B(YD)
30 May 1991

COMMERCIAL ITEM DESCRIPTION

COMPRESSOR, AIR, HIGH PRESSURE

The General Services Administration has authorized the use of this commercial item description for all Federal agencies.

1. SCOPE. This commercial item description (CID) covers wheel-mounted, high pressure, diesel-engine-driven air compressors. The compressor is intended as a portable source of compressed air, readily movable, and suitable for field service at construction sites.

2. CLASSIFICATION. The compressors are of the following sizes, as specified (see 7.2):

Sizes

Size 750 - 750 cubic feet per minute (cfm) (0.35 cubic metre per second (m^3/s) at 300 pounds per square inch gage (psig) (2 068 kilopascal (kPa)).

Size 900 - 900 cfm (0.42 m^3/s) at 350 psig (2 413 kPa).

3. SALIENT CHARACTERISTICS.

3.1 Description. The compressor shall consist of a diesel engine, air end, receiver, air pressure regulating system, lubricating and cooling systems, safety controls, housing, and the piping, instruments, gages, and other accessories specified herein, all assembled and mounted on a fully suspended wheel-mounted undercarriage.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commanding Officer (Code 15E2), Naval Construction Battalion Center, 1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

3.1.1 Performance. The compressor shall be capable of starting and operating under the following range of atmospheric conditions:

a. Plus 125 degrees Fahrenheit (°F) to - 20 °F (51.66 degrees Celsius (°C) to - 28.88 °C) at sea level (29.92 inches of mercury (101 035.4 Pascal (Pa)).
b. Plus 102 °F to - 20 °F (38.88 °C to - 28.88 °C) at an elevation of 5,000 feet (1 524 metre (m)) 24.98 inches of mercury (84 353.71 Pa).

The compressor shall be capable of compressing and delivering not less than the nominal volume of free air applicable to the compressor size at the receiver pressure specified, under the following atmospheric conditions:

a. 14.696 psig (101.33 kPa) absolute (sea level).
b. 60 °F (15 °C).
c. 50 percent relative humidity.

Under the conditions specified, the air discharge temperature shall be not greater than 250 °F (121 °C). The compressor shall be capable of operating satisfactorily when tilted 15 degrees longitudinally or transversely from a level position.

3.2 Standard commercial product. The compressor shall, as a minimum, be in accordance with the requirements of this CID and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this CID, but which are a part of the manufacturer's standard commercial product, shall be included in the compressor being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.3 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to ensure interchangeability of component parts, assemblies, accessories, and spare parts.

3.4 Regulator. Compressor output shall be regulated by a stepless, pneumatic control or electronic system. The system shall be adjustable within limits established by the manufacturer and shall be set to automatically maintain a nominal discharge pressure of not less than 300 psig (2 068 kPa) for size 750 and 350 psig (2 413 kPa) for size 900 when the compressor is operating at full rated capacity. The system shall also provide for automatic regulation of compressor output from zero to 100 percent of rated capacity. Primary regulation shall be effected by the proportional and automatic reduction of engine speed within the range of full-rated-capacity speed to a speed not less than the engine manufacturer's recommended idle speed. Supplemental control may be accomplished by the proportional and automatic actuation of a compressor inlet unloader valve. Over speeding of engine shall not be permitted to achieve the rated capacity.

3.5 Safety shutdown. The compressor shall be equipped with a safety shutdown system designed to automatically stop the engine under any of the following conditions:

a. Compressor discharge air temperature greater than the safe limit established by the manufacturer, but in no case greater than 250 °F (121 °C).
b. Engine coolant temperature greater than manufacturer's established safe limit.
c. Engine lubricating oil pressure below minimum manufacturer's established safe limit.

3.6 Sound level. The exterior sound level produced by the compressor shall be not greater than the noise limits established by the EPA Title 40, CFR, Part 204, Subpart B, in effect on the date of manufacture.

3.7 Engine. The air end shall be driven by a liquid- or air-cooled diesel engine of a size and type used or recommended for use by the compressor manufacturer on standard commercial compressors. The engine, at full-rated compressor output, shall have an intermittent horsepower (hp) rating sufficient to properly and adequately operate the air end and all connected auxiliaries at the speed required to develop rated compressor capacity under the atmospheric conditions specified in 3.1.1. Instruments and gages specified in 3.8 shall be of the type recommended by the manufacturer. All engine accessories supplied commercially as standard equipment shall be furnished. The engine shall be equipped with an electrical starting system rated either at 12 volts (V) or 24V in accordance with the standard voltage for the engine being furnished. The diesel engine shall be capable of starting within five minutes and shall be ready for full-load operation within 15 minutes under any of the atmospheric conditions specified in 3.1.1. The fuel tank shall be sized for continuous operation at rated compressor output of not less than eight hours. The diesel engine shall start in any temperature above - 20 °F (- 28.88 °C). Starting aids may be either electric glow plug or ether primer. When an ether priming system is required, it shall be the measured shot type, with storage capacity of not less than 12 fluid ounces (354.9 millilitre (mL)). A compressor of the enbloc design is excluded from this document.

3.8 Instruments and controls. The following engine instruments and controls, as a minimum, shall be furnished:

a. Control, starter.
b. Control, shutoff.
c. Control, manual engine warm-up.
d. Gage, lubricating oil pressure.
e. Gage, engine coolant temperature.
f. Ammeter or batter charging indicator.
g. Safety controls (see 3.5).
h. Priming aid controls (see 3.7).
i. Hour meter.
j. Fuel gage.

All instruments shall be mounted on a panel or panels located near the operating controls and shall be visible to the operator. The instrument panel(s) shall be furnished with illumination for

night operation. The engine hour meter shall have a totalizing mechanism capable of registering not less than 9,999.9 hours of engine operating time.

3.9 Storage battery(s). Unless otherwise specified (see 7.2), the manufacturer's standard commercial storage battery(s) normally furnished to make a complete electrical system shall be furnished dry-charged without electrolyte, with sealed caps to prevent the intrusion of atmospheric moisture. When specified (see 7.2), a wet-charged or a wet-sealed, maintenance-free battery(s) shall be furnished as specified (see 7.2). The wet-charged battery(s) shall be filled with electrolyte and fully charged. Electrolyte shall have a specific gravity of 1.265 ± 0.010 at 80 °F (26 °C).

3.10 Air cleaners. Air cleaners shall be of the two- or three-stage dry-type design wherein the first stage provides centrifugal separation. The second stage provides impingement filtration with use of a suitable filter medium. When handling dust concentration of 0.025 grams per cubic foot (0.000 71 m^3), the air cleaners shall be capable of operating not less than eight hours without exceeding an air restriction which could adversely affect the rated output of the compressor. When located outside the compressor housing, air intake shall be fitted with a rain cap and a screen. Connections of components associated with the air cleaner installation shall be water- and gas-tight. The cleaner shall have an indicator that shows when the cartridge is ready for replacement and shall be visible to the operator when the instrument panel is open.

3.11 Air end. Unless otherwise specified (see 7.2), the air end shall be of the rotary screw design.

3.12 Receiver. The air receiver shall be designed, constructed, and stamped for a pressure of not less than 450 psig (3 102 kPa) for size 750 and not less than 525 psig (3 619 kPa) for size 900, in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1. The receiver shall be equipped with a pressure gage and drain valve or plug and shall be protected against excessive pressure by the manufacturer's standard relief valve. The receiver discharge system shall include a manual blowdown valve designed to blow the complete air system down to atmospheric pressure when the engine stops. When a pressure greater than of 10 psig (69 kPa) must be maintained in the receiver to ensure adequate circulation of compressor oil or elimination of carry over, the air discharge piping shall include a minimum pressure valve or device set to maintain a predetermined minimum back-pressure on the compressor oil system.

3.13 Manifold and service outlets. The air receiver discharge line shall be equipped with an air service manifold having individually controlled service outlets with standard universal type pneumatic hose couplings. The air service manifolds shall be fitted with not less than one 2-inch outlet at each end of the manifold, two 0.75-inch (19 mm) outlets, and two 1.5-inch (38 mm) outlets with valves. All 0.75-inch (19 mm) outlets shall be equipped with the manufacturer's standard lever-type air cocks. Couplings shall be provided. The compressor shall be equipped with a check valve installed in the air line between the receiver and the manifold outlets to prevent reverse flow of air into the receiver during blowdown. When specified (see 7.2), a manual shutoff valve shall be installed in the air line between the receiver and the manifold.

3.14 Housing. A suitable housing shall be provided to enclose the engine, compressor, and instrument panel(s). Housing and panels shall be not less than 0.0568-inch (U.S. revised standard gage No. 16) (1 mm) thick. Supporting members and braces shall be furnished as required. The housing shall be sufficiently rigid to support a 300-pound (135.9 kg) load applied to any single one-square-foot (0.092 square metre) area on the top of the housing. The housing shall include hinged access openings to the engine, air end, and instrument panel(s). Access panel(s) shall be equipped with devices to hold the panel(s) in an open position and clamps or latches to retain the panel(s) in the closed position. Access panel(s) to fuel service and instrument panels shall be lockable, and keyed alike. Fenders shall be sufficiently supported to withstand the load of a person weighing not less than 175 pounds (lbs) (79.275 kg).

3.15 Mounting. The complete compressor chassis shall be securely mounted on a wheel-mounted undercarriage equipped with parking and inertia brakes of the drum or disc type. The undercarriage configuration shall be two or three axles in tandem with drawbar for size 750 compressor, and shall be not less than three axles in tandem with drawbar for size 900 compressor. The undercarriage shall be configured with fixed drawbar, lunette-coupler, adjustable coupler height and retractable landing leg or jack stand. The adjustable hitch height shall be ± 6 inches (± 9 152 mm) from the centerline of the towbar. The compressor shall be equipped with suspension components with a rated capacity not less than equal to the loads imposed on each member, measured at rated at spring pads, unsprung weight shall be deducted. Two safety chains shall be furnished on each compressor. The compressor undercarriage shall be designed for towing over graded gravel roads at speeds up to 20 miles per hour (mph) (32.2 kilometre per hour (km/h), and paved surfaces at speeds to 50 mph (80.45 km/h).

3.15.1 Tires and wheels. Tires shall be of rated capacity not less than equal to the load imposed on each tire, measured at each wheel at the ground with compressor loaded to rated gross vehicle weight. Tires shall not drag on fenders when making turns. Unless otherwise specified (see 7.2), tires and wheels shall be of the wide base type having a ply rating and size recommended in the Tire and Rim Association (TRA) Yearbook for the gross weight of the unit. Tire size shall be not less than 12:00 X 15.

3.15.2 Parking brake. Unless otherwise specified (see 7.2), a lever type handbrake shall be provided. The parking brake shall be capable of holding the compressor in a stationary position on a 15 percent grade. Frictional parking brakes utilizing the exterior surface of the tires are not acceptable.

3.16 Air transportability. The compressor dimensions shall be not greater than 105 inches (2 667 mm) in width and 102 inches (2 591 mm) in height in a reduced configuration, to conform to air transportability requirements. In addition, the weight of the compressor shall be not greater than 20,000 lbs (9 071.84 kg) per tandem axle with the fuel tank three-quarters full in a reduced configuration. Achieving a reduced configuration shall be limited to the removal or relocation of mechanically attached (nonwelded) components and shall not affect the transportability of the item. The reduced configuration shall not affect the ability to negotiate, without interference, a 15-foot (4 572 mm) ramp at an angle of 17 degrees between two horizontal surfaces. Removal and reinstallation or reinstallation time of all components required to achieve the reduced

configuration shall be not greater than four man-hours. When delivered to the Government, the compressor shall not be in the reduced configuration.

3.17 Lubrication. Means for lubricating shall be provided in accordance with the manufacturer's standard practice. Parts requiring lubrication shall be so located as to make the lubricating points easily visible and accessible. All parts requiring lubrication shall be properly lubricated before delivery. The equipment shall be tagged to indicate the temperature range and grades of lubricants used.

3.18 Cleaning, treatment, and painting. Surfaces normally painted in good commercial practice shall be cleaned and dried to ensure that they are free from contaminants such as oil, grease, welding slag and spatter, loose mill scale, water, dirt corrosion product, or any other contaminating substances. The primer shall be applied to a clean dry surface as soon as practicable after cleaning and treating. Painting shall be with manufacturer's current materials according to manufacturer's current processes and the total dry film thickness shall be not less than 2.5 mils over the entire surface. The paint shall be free from runs, sags, orange peel, or other defects. The end item, allied equipment, and attachments shall be the same color. The painting shall consist of at least one coat of primer and one finish coat of acrylic-based or polyurethane enamel.

3.19 Lifting and tiedown attachments. The compressor shall be provided with a lifting eye for handling by a crane or a hoist and shall preclude the use of spreader bars. The eye shall be located at the top of the machine at the normal center of balance. The lifting eye shall be capable of supporting 2.5 times the weight of the machine and shall be mounted in such a manner that the machine and its accessories retain alignment during lifting operations. The compressor shall be equipped with tiedown attachments. Tiedown attachments may be identified by stenciling or other suitable marking. Tiedown marking shall clearly indicate that the attachments are intended for the tiedown of the compressor on the carrier when shipped.

3.20 Fungus resistance. When specified (see 7.2), electrical components and circuit elements, including terminal and circuit connections, shall be coated with varnish, except that:

a. Components and elements inherently inert to fungi or in hermetically sealed enclosures need not be coated.
b. Current-carrying contact surfaces, such as relay contact points, shall not be coated.

3.21 Name plate. A name plate will be furnished by the contracting officer for each compressor. The contractor shall stamp all necessary data in the blank spaces provided for that purpose and securely affix it to each compressor in a conspicuous place with nonferrous metal screws, bolts, or rivets not less than 0.125-inch (3 mm) in diameter shall be used to affix the plates to the equipment.

3.22 Instruction plates. The unit shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the

equipment and shall be securely affixed to the equipment with nonferrous screws or bolts not less than 0.125-inch (3 mm) in diameter.

3.23 Identification marking. Identification shall be permanently and legibly marked directly on the unit or on a corrosion-resisting metal plate securely attached to the unit at the source of manufacture. Identification shall include the manufacturer's model and serial number, name and trademark to be readily identifiable to the manufacturer.

3.24 Workmanship.

3.24.1 Wrought steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design.

3.24.2 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the casting's ability to perform its intended function.

3.24.3 Bolted connections. Bolt holes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

3.24.4 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

3.24.5 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings. Copies of welder qualification record shall be made available to authorized Government inspectors.

4. REGULATORY REQUIREMENTS.

4.1 Materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR). Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this commercial item description are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be

interpreted to mean that the use of used or rebuilt products are allowed under this commercial item description.

4.2 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within specified tolerances using conversion tables contained in the latest version of ASTM E 380, and all other requirements of this commercial item description including form, fit, and function are met. If a product is manufactured to metric dimensions and these dimensions exceed the tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable. The contracting officer has the option of accepting or rejecting the product.

5. QUALITY ASSURANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

6. PACKAGING. The preservation, packing, and marking shall be as specified in the contract or
order.

7. NOTES.

7.1 Source of documents.

7.1.1 The Federal Acquisition Regulation (FAR) and Code of Federal Regulations (CFR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.1.2 ASME Standards are available from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.

7.1.3 ASTM Standards are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

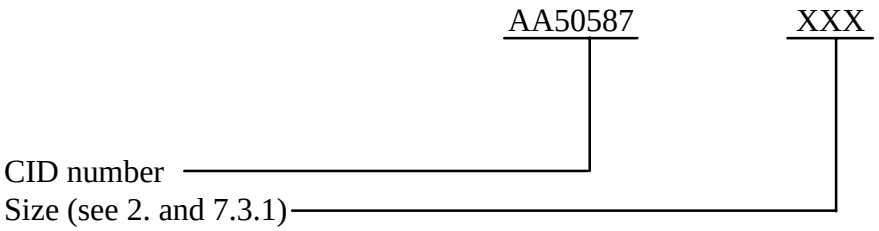
7.1.4 TRA documents are available from the Tire and Rim Association, Inc., 175 Montrose West Avenue, Suite 150, Copley, OH 44321.

7.2 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this CID.
b. Size required (see 2.).
c. When a dry-charged battery is not furnished (see 3.9).

d. Type of battery to be furnished, if different (see 3.9).
e. Type of air end, if different (see 3.11).
f. When a manual shutoff valve is required (see 3.13).
g. Type of tire and wheel, if different (see 3.15.1).
h. When a parking brake is not required (see 3.15.2).
i. When fungus treatment is required (see 3.20).

7.3 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. The PINs to be used for items acquired to this description are created as follows:



7.3.1 Size code identifier. The size code identifier is a three-digit identifier as follows:

Size 750 - 750
Size 900 - 900

7.4 Subject term (key word) listing.

Rotary compressor
Undercarriage

MILITARY INTEREST:

Custodian:
Navy - YD1

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:
Navy - YD1

(Project 4310-0021)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	**1. DOCUMENT NUMBER** A-A-50587	**2. DOCUMENT DATE (YYMMDD)** 970624

3. DOCUMENT TITLE COMPRESSOR, AIR, HIGH PRESSURE

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include Zip Code)*	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON *(if applicable)*	**7. DATE SUBMITTED** (YYMMDD)

8. PREPARING ACTIVITY

a. NAME G. M. KRALIK	b. TELEPHONE *Include Area Code)* (1) Commercial (805) 982-5741 (2) AUTOVON 551-5741
c. ADDRESS *(Include Zip Code)* COMMANDING OFFICER, NCBC CODE 15E2R 1000 23RD AVENUE PORT HUENEME, CA 93043-4301	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** DEFENSE QUALITY AND STANDARDIZATION OFFICE 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466 Telephone (703) 756-2340 AUTOVON 289-2340